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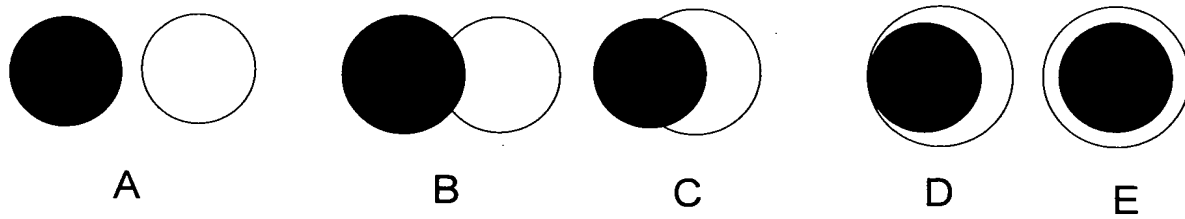


Figure 1. Relationship between interfacial surface tensions and particle morphology.

A – Failed core-shell – physical blend of two separate particles:

$$\sigma_{AB} \gg \sigma_{AW} \sim \sigma_{BW}$$

B – symmetric “ice-cream cone”:  $\sigma_{AB} > \sigma_{AW} \sim \sigma_{BW}$

C – asymmetric “ice-cream cone”:  $\sigma_{AB} > \sigma_{AW} > \sigma_{BW}$

D – asymmetric (or incomplete) core-shell:  $\sigma_{AW} \gg \sigma_{AB} > \sigma_{BW}$

E – perfect core-shell particle:  $\sigma_{AW} > \sigma_{AB} > \sigma_{BW}$

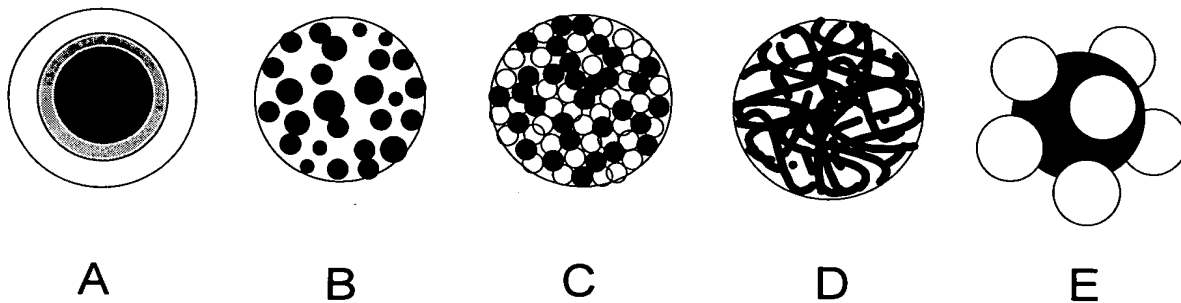


Figure 2. Examples of particle morphologies.

A – core-shell particle with transition gradient interlayer

B – “raspberry” morphology

C – “salt-and-pepper” morphology

D – interpenetrating network

E – lobed particles

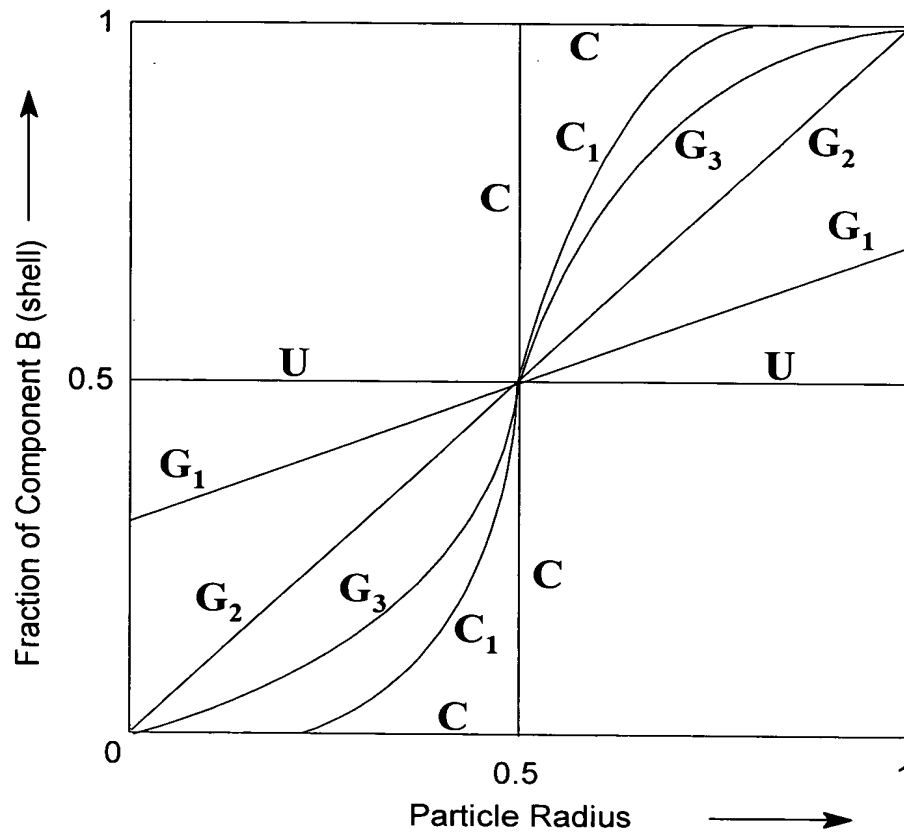


Figure 3. The dynamic of phase separation during the formation of core-shell particles.

U – uniform particles

G<sub>1</sub>, G<sub>2</sub> – constant gradient particles with different levels of separation

G<sub>3</sub> – variable gradient particles

C<sub>1</sub> – core-shell particle with transition gradient interlayer

C – perfect core-shell particle

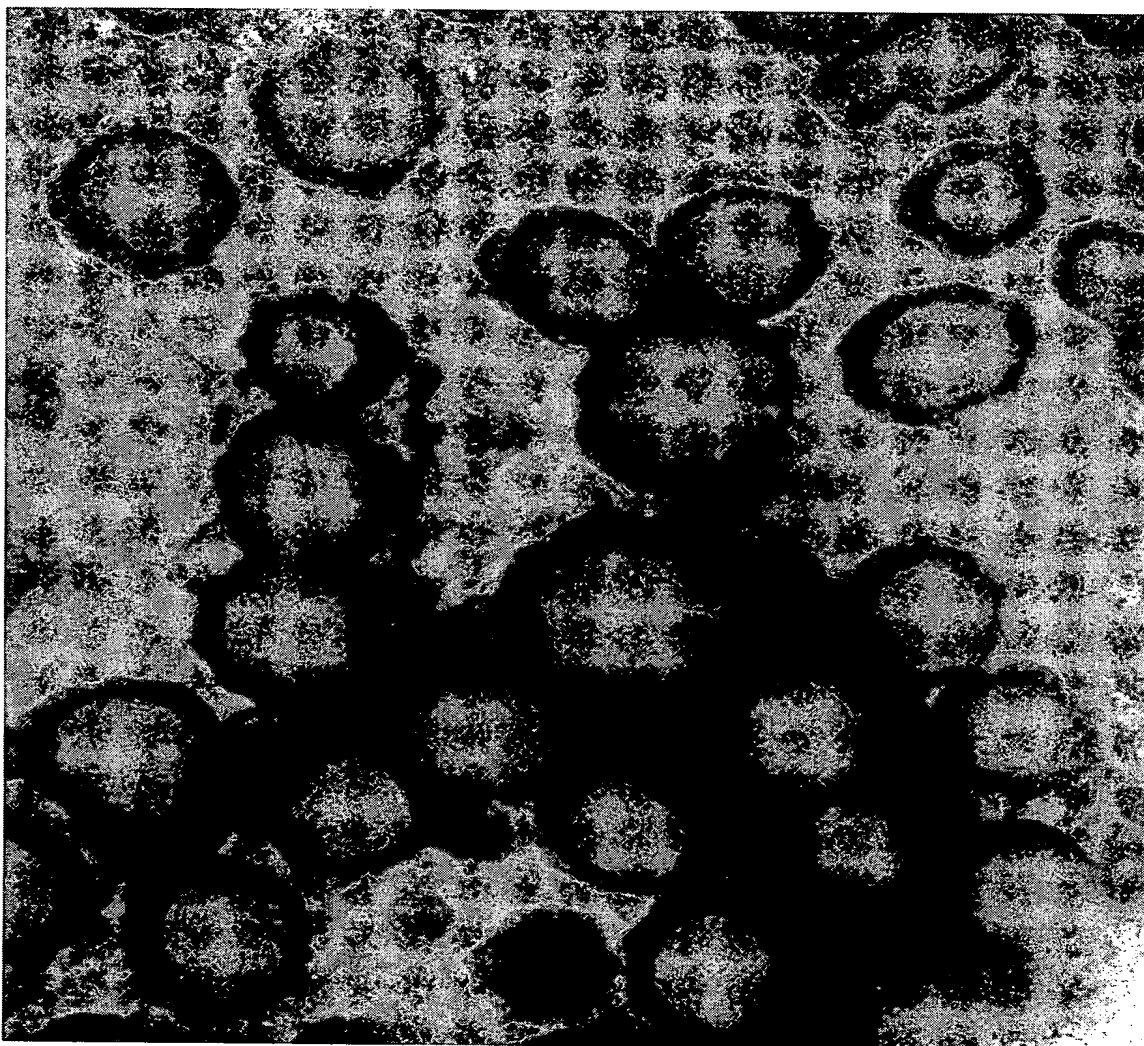


Figure 4. TEM photograph of core-shell particles with brominated shell from Example 1.

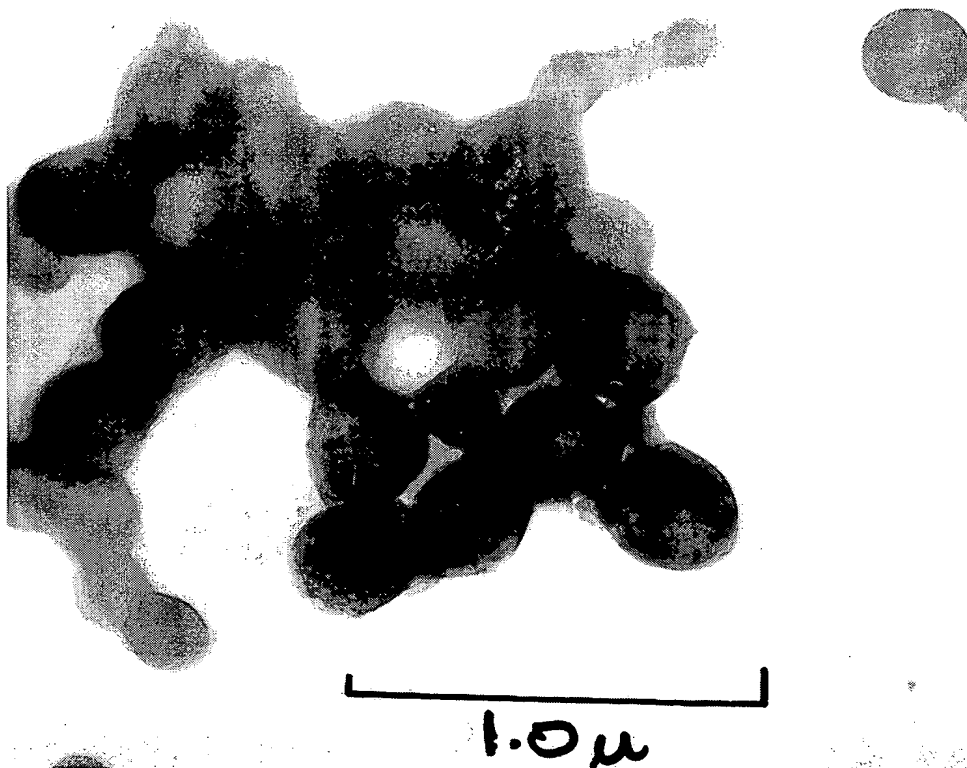


Figure 5. TEM photograph of Polyester core/Polycarbonate shell particles from Example 2 with Cesium hydroxide staining.

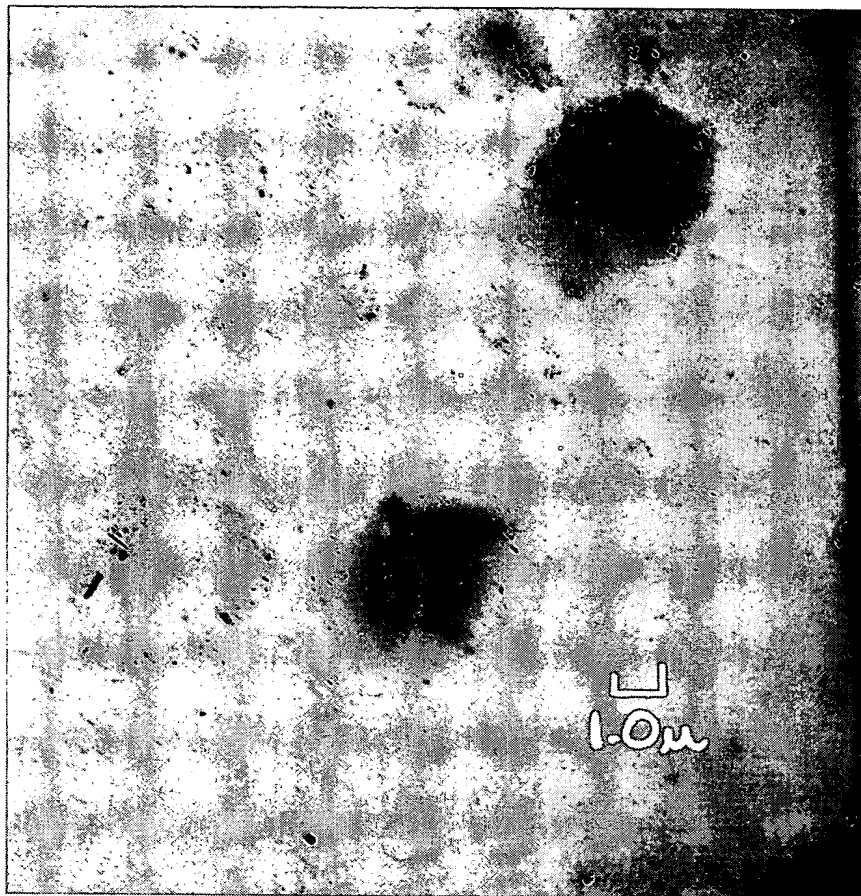


Figure 6. TEM photograph of particles from Comparative Example 3 with cesium hydroxide staining.

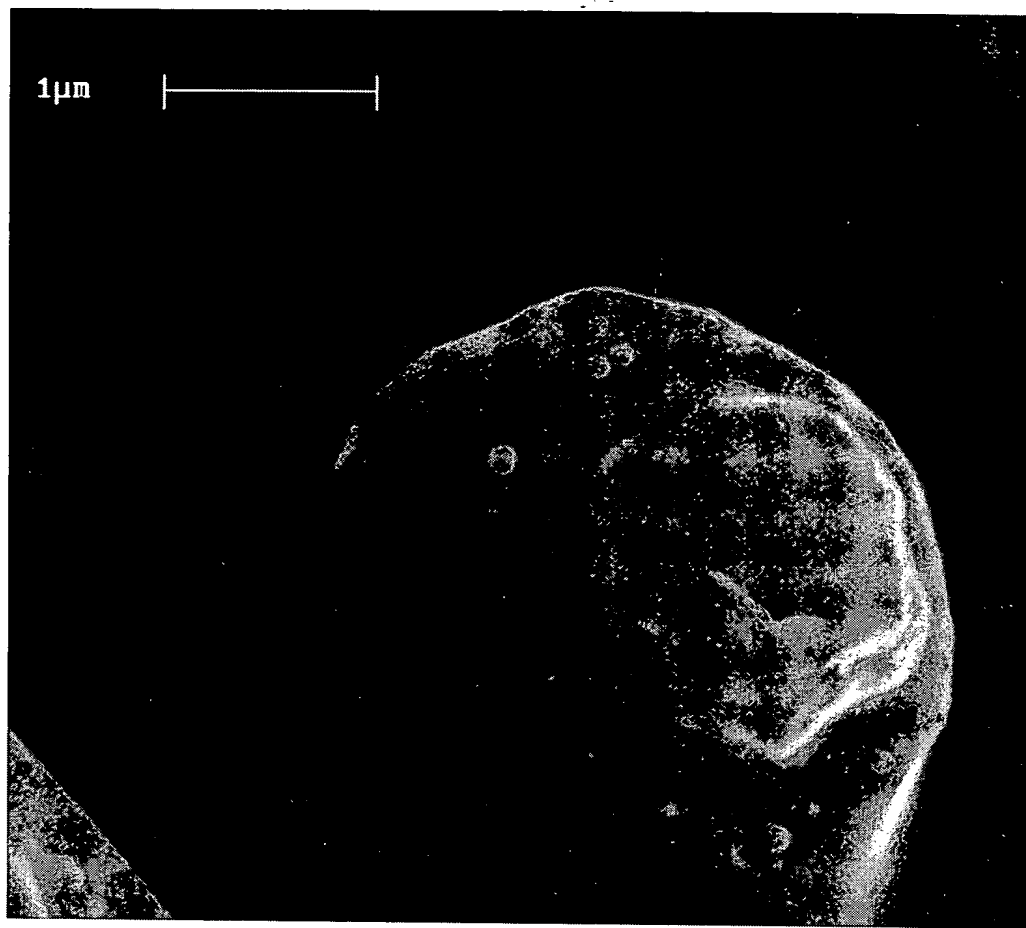


Figure 7. CryoSEM image of core-shell particle with 30% rubbery core (HNA/IPDI) and 70% hard shell (PPG/Des W) from Example 4.

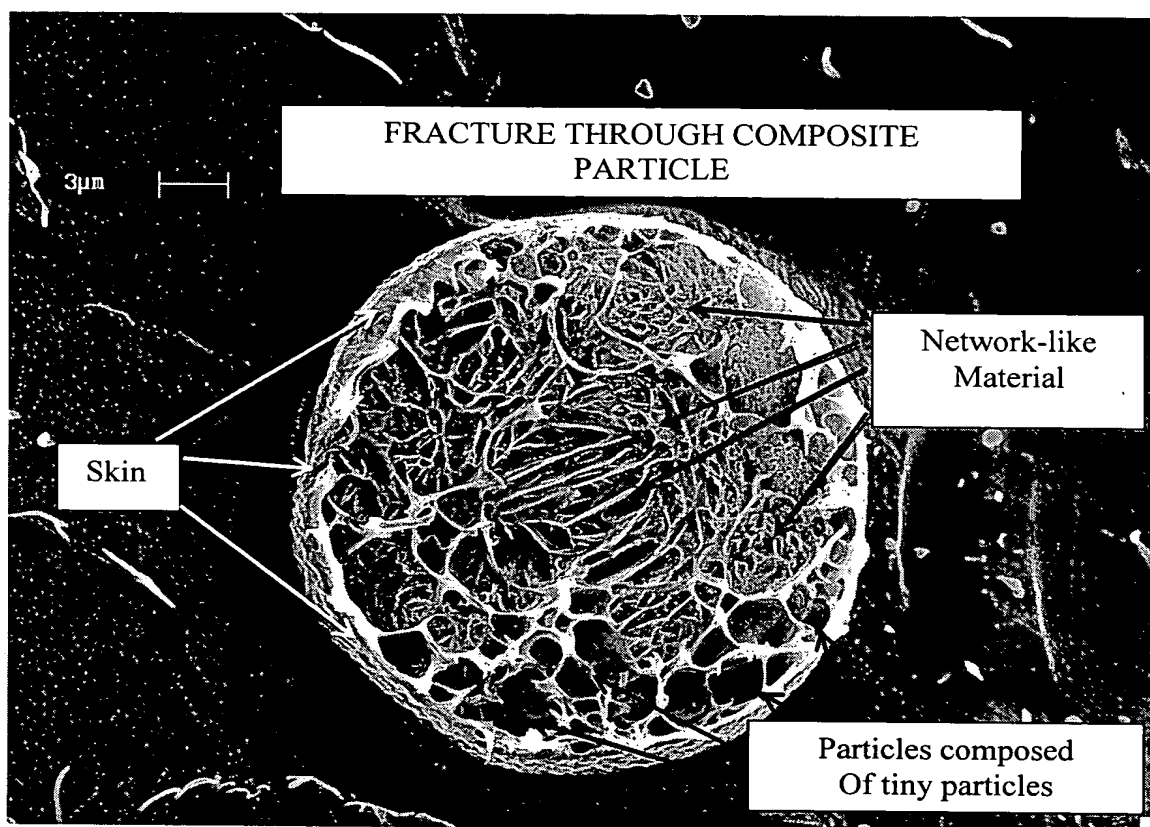


Figure 8. CryoSEM image of core-shell particle with 70% core (HNA/IPDI) and 30% shell (PPG/Des W) from Example 5. (026-137)





Figure 9. TEM image of “ice-cream cone” particles with 20% core (CAPA/Desmodur W) and 80% shell (PPG/IPDI) from Example 6.

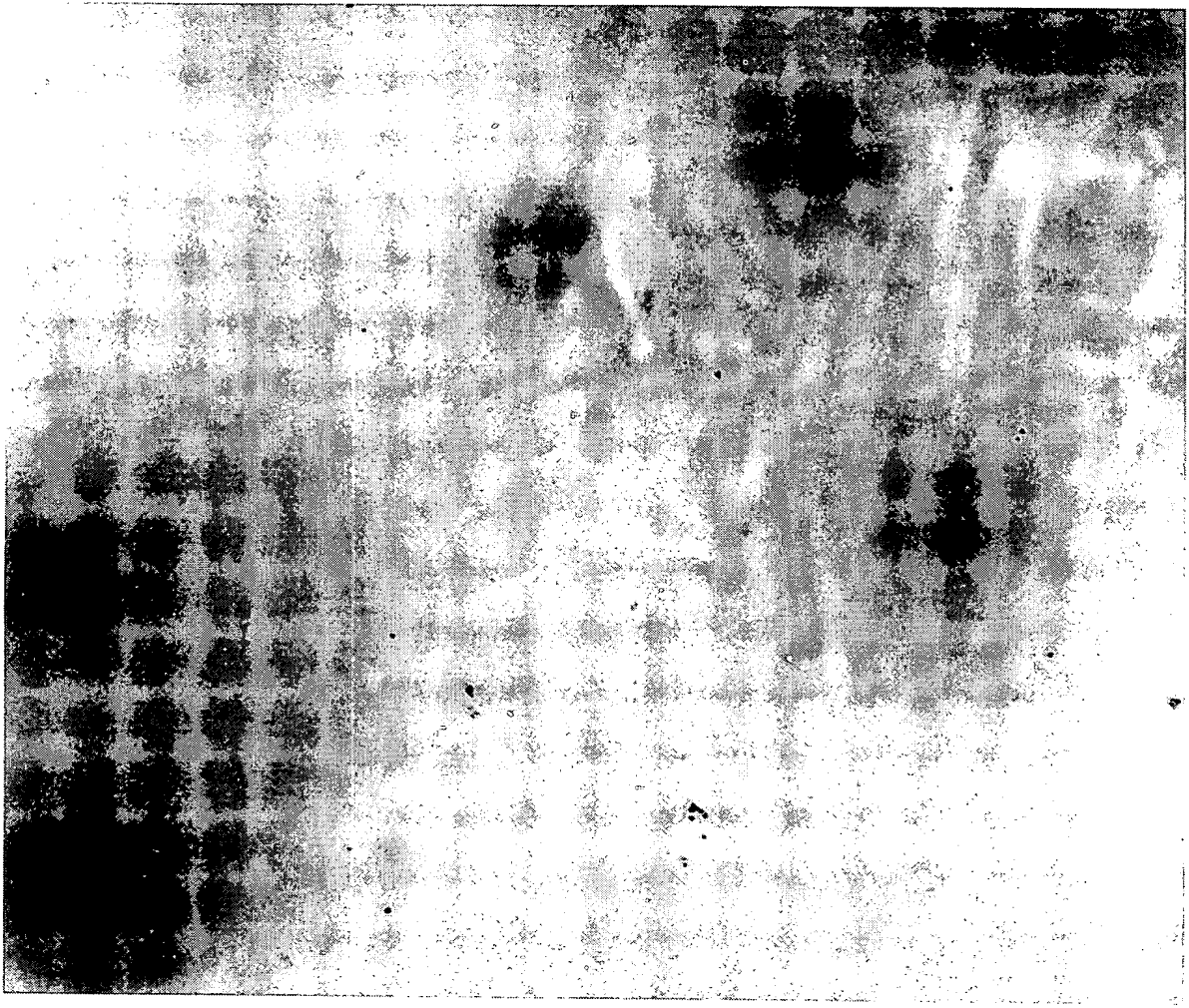


Figure 10. TEM (Transmission Electron Microscopy) photograph of particles from dispersion obtained in Example 32.

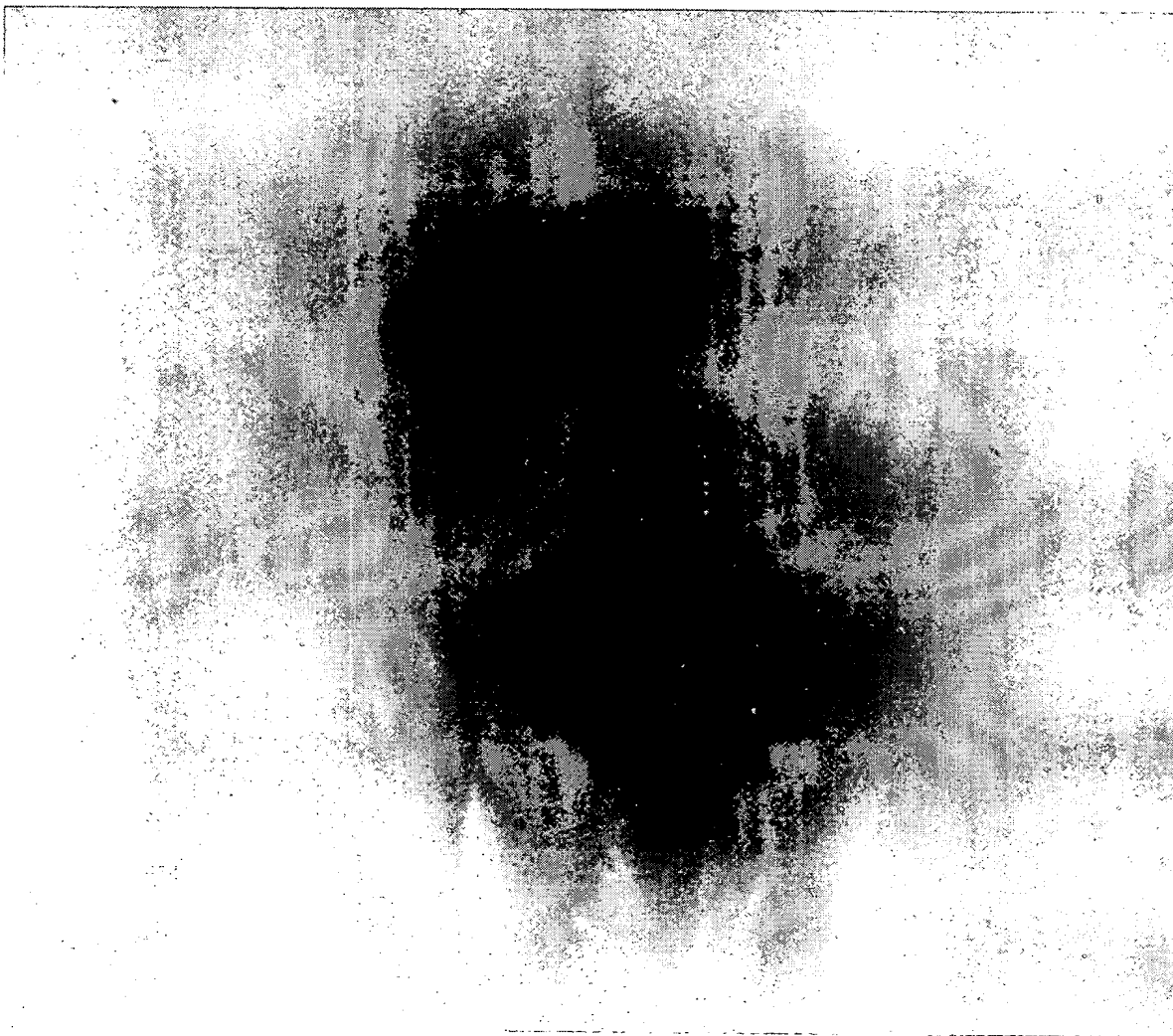


Figure 11. TEM (Transmission Electron Microscopy) photograph of particles from dispersion obtained in Example 33.

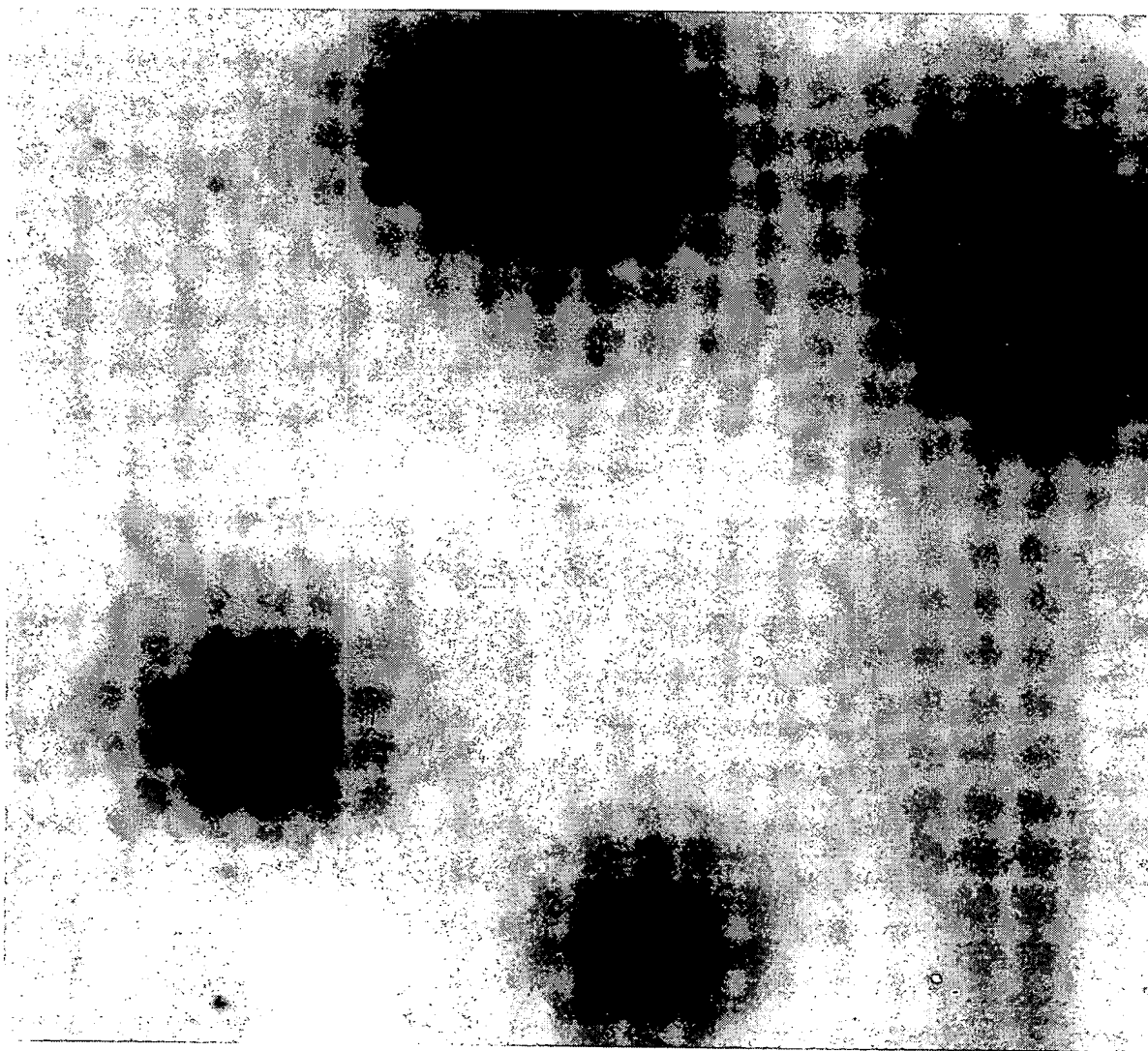


Figure 12. TEM (Transmission Electron Microscopy) photograph of particles from dispersion obtained in Example 34.

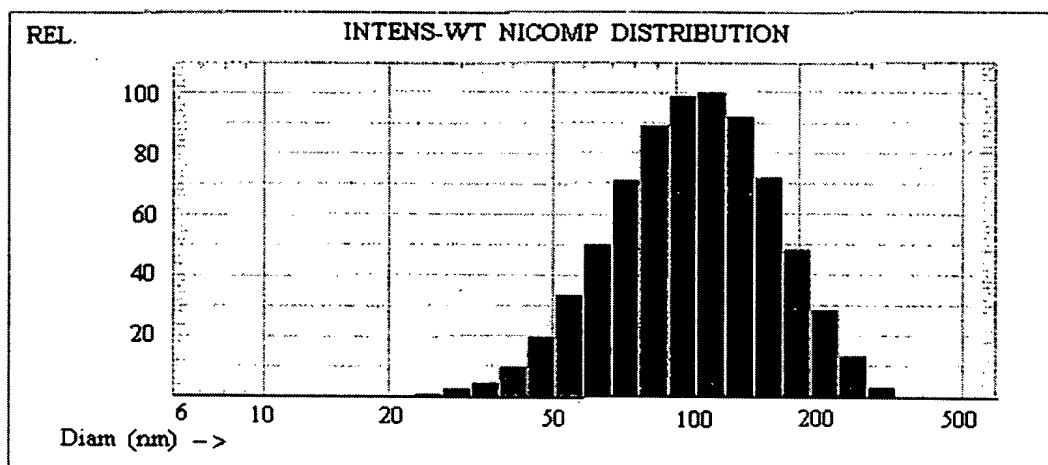


Figure 13. Particle size distribution of the dispersion from Example 1.